

Appl. No. 10/065,254
Amendment dated December 17, 2003
Response to Office Action of November 24, 2003

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (original) A device comprising:
a substrate with a device region;
a cap for encapsulating the device, the cap creates a cavity over the device region; and
spacer particles on the substrate to support the cap, the spacer particles comprising a base and an upper portion, the base being at least equal to or wider than the upper portion.
2. (original) The device of claim 1 wherein the device region comprises one or more cells.
3. (original) The device of claim 2 wherein the cells comprise at least one organic layer formed between lower and upper electrodes.
4. (original) The device of claim 3 wherein the lower electrodes are anodes and the upper electrodes are cathodes.
5. (original) The device of claim 3 wherein the upper electrodes are anodes and the lower electrodes are cathodes.
6. (original) The device of claim 3 wherein the spacer particles comprise a half-spherical shape.
7. (original) The device of claim 3 wherein the spacer particles comprise a pyramidal, cubical, prism, regular or irregular shape.
8. (original) The device of claim 3 wherein the spacer particles comprise a non-conductive material.
9. (original) The device of claim 8 wherein the spacer particles comprise glass, silica, polymers, ceramic or photoresist.

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10. (original) The device of claim 8 wherein the spacer particles comprise an average diameter to maintain the height of the cavity.
11. (original) The device of claim 10 wherein the spacer particles comprise a density to maintain separation between the cap and the device region.
12. (original) The device of claim 11 wherein the density is about $10 - 1000 \text{ No/mm}^2$.
13. (original) The device of claim 12 wherein an average distance between the spacer particles is about $100 - 500 \mu\text{m}$.
14. (original) The device of claim 1 wherein the spacer particles comprise a half-spherical shape.
15. (original) The device of claim 1 wherein the spacer particles comprise a pyramidal, cubical, prism, regular or irregular shape.
16. (original) The device of claim 14 wherein the spacer particles comprise a non-conductive material.
17. (original) The device of claim 16 wherein the spacer particles comprise glass, silica, polymers, ceramic or photoresist.
18. (original) The device of claim 17 wherein the spacer particles comprise an average diameter to maintain the height of the cavity.
19. (original) The device of claim 18 wherein the spacer particles comprise a density to maintain separation between the cap and the device region.
20. (original) The device of claim 19 wherein the density is about $10 - 1000 \text{ No/mm}^2$.
21. (original) The device of claim 20 wherein an average distance between the spacer particles is about $100 - 500 \mu\text{m}$.

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22. (withdrawn) A method for forming a device, comprising:
providing a substrate with a device region;
applying a layer of adhesive on spacer particles, the spacer particles comprising a base and an upper portion, the base being at least equal to or wider than the upper portion;
depositing the spacer particles on the substrate;
curing the layer of adhesive on the spacer particles; and
mounting a cap on the substrate to encapsulate the device, the cap forms a cavity over the device region, the cavity maintained by the spacer particles.
23. (withdrawn) The method of claim 22 wherein the device comprises an OLED device.
24. (withdrawn) The method of claim 23 wherein the spacer particles comprise a non-conductive material.
25. (withdrawn) The method of claim 24 wherein the step of depositing the spacer particles comprises dry spraying.
26. (withdrawn) The method of claim 25 wherein the spacer particles occupy active and non-active parts.
27. (withdrawn) The method of claim 25 wherein the spacer particles occupy non-active parts.
28. (withdrawn) The method of claim 25 wherein coverage of the spacer particles on the substrate is patterned by photolithography technology.
29. (withdrawn) The method of claim 25 wherein coverage of the spacer particles on the substrate is patterned by shadow mask technology.
30. (withdrawn) The method of claim 25 wherein coverage of the spacer particles on the substrate is patterned by dry resist technology.

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31. (withdrawn) The method of claim 24 wherein the step of depositing the spacer particles comprises wet spraying.
32. (withdrawn) The method of claim 31 wherein the spacer particles occupy active and non-active parts.
33. (withdrawn) The method of claim 31 wherein the spacer particles occupy non-active parts.
34. (withdrawn) The method of claim 31 wherein coverage of the spacer particles on the substrate is patterned by photolithography technology.
35. (withdrawn) The method of claim 31 wherein coverage of the spacer particles on the substrate is patterned by shadow mask technology.
36. (withdrawn) The method of claim 24 wherein the step of depositing the spacer particles comprises spin coating, doctor blading, screen printing or transfer printing.
37. (withdrawn) The method of claim 24 wherein the adhesive comprises thermal curable material.
38. (withdrawn) The method of claim 24 wherein the adhesive comprises ultraviolet curable material.
39. (withdrawn) The method of claim 24 wherein the adhesive comprises hot melt material.
40. (withdrawn) A method for forming a device, comprising:
providing a substrate with a device region;
forming a plurality of spacer particles on the substrate, the spacer particles comprising a base and an upper portion, the base being at least equal to or wider than the upper portion;
and
mounting a cap on the substrate to encapsulate the device, the cap forms a cavity over the device region, the cavity maintained by the spacer particles.

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41. (withdrawn) The method of claim 40 wherein the step of forming a plurality of spacer particles on the substrate comprises:

depositing particles on the substrate; and

heating the particles to a high temperature to cause the particles to reflow into the spacer particles having the base at least equal to or wider than the upper portion.

42. (withdrawn) The method of claim 40 wherein the step of forming a plurality of spacer particles on the substrate comprises:

depositing a photoresist on the substrate; and

patterning the photoresist into the spacer particles having the base at least equal to or wider than the upper portion.